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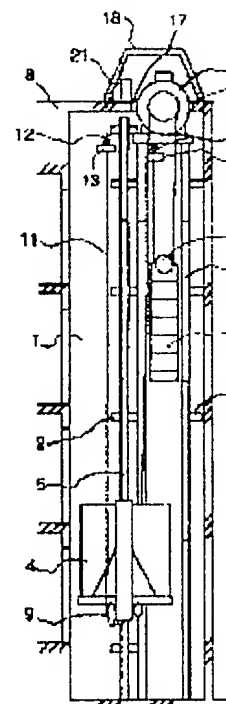
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(54) ELEVATOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an elevator capable of improving workability for an operation carried out when a hoist fails or maintenance work.

SOLUTION: An elevator is provided with an opening section 17 formed in the ceiling part 8 out of a hoistway 1 to enable a hoist 14 to be installed by being protruded toward the upper side of a building, an a cover 18 opened/ closed from the roof of the building to cover the hoist 14. When work to deal with the failure of the hoist 14 or maintenance work is carried out, a maintenance engineer works by opening the cover 18 on the roof of the building, and exposing the hoist installed by being protruded toward the upper side of the building from the opening section 17. Thus, working time and labor are reduced.



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2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to the elevator which is made to go up and down a riding cage and a balance weight through a rope with a loop wheel machine, and carries human and load.

[0002]

[Description of the Prior Art] If it was generally in the elevator of a rope type, the hoistway was formed in the building, and the riding cage and the balance weight have been arranged in these rise and fall, and machine room was prepared on the building, and this machine room was equipped with the loop wheel machine and the control panel.

[0003] However, when the problem of right to sunshine arose in connection with machine room being on a building, the hydraulic elevator was mainly installed.

[0004] However, in the case of a hydraulic elevator, there was a problem that the travel speed of a riding cage could not be made quick compared with a hydraulic elevator on the property.

[0005] For this reason, what has arranged the loop wheel machine which consists of a disc-like rotator to the cage path upper part of the hoistway summit section and the tooth space between hoistway walls is proposed so that it may be recently indicated by JP,7-10434,A.

[0006]

[Problem(s) to be Solved by the Invention] By the way, in the conventional elevator mentioned above, while great difficulty should have followed on the response since the tooth space of the hoistway summit section was restricted when a loop wheel machine broke down, even if it was in the usual maintenance service, there was a problem that workability was bad.

[0007] This invention was made in view of the actual condition in such a conventional technique, and the object is in offering the elevator which can improve the workability at the time of a failure response of a loop wheel machine or a maintenance service.

[0008]

[Means for Solving the Problem] In order to attain this object, in the elevator which makes it go up and down the riding cage and balance weight which this invention equipped the hoistway upper part with the loop wheel machine, and were formed in said hoistway through the rope by this loop wheel machine, it is formed in the head-lining section of said hoistway, and is opened and closed from opening which projects in the building upper part and makes possible installation of said loop wheel machine, and the building roof, and said loop wheel machine is made the configuration equipped with wrap covering.

[0009] According to the elevator of this invention constituted as mentioned above, when performing a failure response of a loop wheel machine and a maintenance service, a customer engineer opens covering from the building roof, and works by exposing the loop wheel machine installed by the building upper part by projecting through opening. Thus, the workability can be raised by performing a failure response of a loop wheel machine and a maintenance service in the comparatively large tooth space of the building roof. Moreover, some or all of a loop wheel machine, and since the part which projects from the building roof is wrap covering about this, it does not affect right to sunshine.

[0010]

[Embodiment of the Invention] Hereafter, the gestalt of operation of the elevator of this invention is explained based on drawing.

[0011] Drawing 1 is the whole schematic diagram showing 1 operation gestalt of the elevator of this invention.

[0012] As the elevator of this operation gestalt is shown in drawing 1, it has the guide rail 5 for cages which shows the wall of a hoistway 1 to a mounting eclipse and a riding cage 4 through a bracket 2, and the guide rail 7 for balance

weights which shows the wall of a hoistway 1 to a mounting eclipse and a balance weight 6 through a bracket 3, and these guide rails 5 and 7 are installed from hoistway 1 pars basilaris ossis occipitalis to the head-lining section 8 neighborhood. Moreover, the rope 11 is wound around the riding cage 4 and the balance weight 6 through pulleys 9 and 10. The edge 12 of this rope 11 is fixed to the rope end 13 fixed to the hoistway 1 upper-part section. After being wound around the pulley 9 of the riding cage 4 lower part and being almost wound around the loop wheel machine 14 fixed through the plinth which is not illustrated in the guide-rail 7 upper part for balance weights, It is wound around the pulley 10 of a balance weight 6, and other edges 16 of a rope 11 are being fixed to other rope ends 15 fixed to the hoistway 1 upper-part section. Thereby, a riding cage 4 and a balance weight 6 go up and down through a rope 11 by actuation of a loop wheel machine 14. Furthermore, it is formed in the head-lining section 8 of a hoistway 1, it is opened and closed from the opening 17 which projects in the building upper part and makes possible installation of some loop wheel machines 14, and the building roof, and a loop wheel machine 14 is formed in the wrap covering 18 and the perimeter of opening 17, and while having projection wall 8A and ** which prevent water advancing into this opening 17, the control panel 21 is arranged near the loop wheel machine 14.

[0013] If it is in this operation gestalt, when performing a failure response of a loop wheel machine 14 and a maintenance service, a customer engineer goes up to the building roof, opens covering 18, and works by exposing the loop wheel machine 14 installed by the building upper part by projecting through opening 17.

[0014] Thus, with the constituted operation gestalt, by performing a failure response of a loop wheel machine 14 and a maintenance service in the comparatively large tooth space of the building roof, the workability can be raised, and it can work, without requiring assembling a footing in the upper part section of a hoistway especially.

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ELEVATOR

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[There are no amendments to this patent.]

Abstract

Problem

To provide an elevator capable of improving the serviceability during maintenance work or repair of a hoist failure.

Means to solve

Opening (17), which is formed in ceiling (8) of elevator shaft (1) and makes installation of hoist (14) so that it projects above the building possible, and cover (18), which is opened and closed from the roof of the building and covers hoist (14), are provided, and when performing maintenance or repair of a failure of hoist (14), work is executed by the maintenance man opening cover (18) at the roof and exposing hoist (14) installed to project above the building via opening (17).

Effect

Reduction in labor and working time can be achieved.

Figure 1

Claims

1. An elevator characterized by the fact that in an elevator equipped with a hoist at the top part of the elevator shaft and that lifts the elevator car and the counterweight provided within the aforementioned elevator shaft with this hoist via a cable,

an opening, which is formed in the ceiling of the elevator shaft and makes installation of the hoist such that it projects above the building possible, and a cover, which is opened and closed from the roof and covers the aforementioned hoist, are provided.

2. The elevator of Claim 1 characterized by the fact that the aforementioned hoist is mounted to the extension of the guide rail that guides the elevator car or the counterweight.

3. The elevator of Claim 1 characterized by the fact that the aforementioned hoist is installed such that the entire body thereof can project from the roof of the building.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention relates to an elevator for transporting human beings and goods by lifting the elevator car and the counterweight with a hoist via a cable.

[0002]

Prior art

Generally, in a cable elevator, an elevator shaft is formed within a building, an elevator car and a counterweight are arranged within the elevator shaft, a machine room is installed at the top of the building, and a hoist and a control panel are provided in this machine room.

[0003]

However, when problems with solar rights were created due to the machine room being at the top of the building, a hydraulic elevator was usually installed.

[0004]

However, with hydraulic elevators there is the problem that the travel speed of the elevator car is not as fast as with hydraulic [sic; cable] elevators due to the characteristics.

[0005]

Consequently, arrangement wherein a hoist composed from a disk-shaped rotor located in the space between the walls of the elevator shaft, above the elevator car path at the top of the

elevator shaft, has been proposed recently, as noted in Japanese Kokai Patent Application No. Hei 7[1995]-10434.

[0006]

Problems to be solved by the invention

Incidentally, if for some reason the hoist fails in the aforementioned conventional elevator, there are problems in that handling the failure is very difficult due to the limited space at the top part of the elevator shaft, and the serviceability is unfavorable even for normal maintenance work.

[0007]

The present invention was made with this situation in the prior art in mind, and the objective thereof is to provide an elevator capable of improving the serviceability during maintenance work or repair of a hoist failure.

[0008]

Means to solve the problems

In order to achieve this objective, the present invention was constituted by providing an opening, which is formed in the ceiling of the elevator shaft and makes installation of the hoist such that it projects above the building possible, and a cover which is opened and closed from the roof of the building and covers the aforementioned hoist, in an elevator equipped with a hoist at the top part of the elevator shaft and that lifts the elevator car and the counterweight, provided within the aforementioned elevator shaft along with this hoist, via a cable.

[0009]

According to the elevator of the present invention constituted as described above, when performing maintenance or handling a hoist failure, the maintenance man executes the work by opening the cover from the roof of the building and exposing the hoist, which was installed such that it projects above the building via the opening. Thus, by performing maintenance or repairing a hoist failure in a relatively wide space at the roof of the building, the serviceability thereof can be improved. Also, the section that projects from the roof of the building is a part of or the entire hoist, plus the cover that covers this, so it has no effect on solar rights.

[0010]

Embodiment of the invention

Below, an embodiment of the elevator in the present invention will be explained, with reference to the figures.

[0011]

Figure 1 is an overall schematic diagram showing an embodiment of the elevator in the present invention.

[0012]

The elevator in this embodiment is mounted to the wall of elevator shaft (1) via bracket (2); elevator car guide rail (5), which guides elevator car (4), and counterweight guide rail (7), which is mounted to the wall of elevator shaft (1) via bracket (3) and guides counterweight (6), are provided, and these guide rails (5,7), are extended from the bottom part of elevator shaft (1) to the vicinity of ceiling (8), as shown in Figure 1. Also, cable (11) is wound on elevator car (4) and counterweight (6) via pulleys (9) and (10), end (12) of this cable (11) is fixed to cable anchor (13) fixed at the top part of elevator shaft (1), and after being wound on pulley (9) at the bottom part of elevator car (4) and wrapped on hoist (14) fixed at the top part of counterweight guide rail (7) via pedestal not shown in the figure, it is wound on pulley (10) of counterweight (6), and the other end (16) of cable (11) is fixed to the other cable anchor (15) fixed to the top part of elevator shaft (1). Consequently, the constitution permits elevator car (4) and counterweight (6) to be lifted via cable (11) by operation of hoist (14). Furthermore, along with provision of opening (17) which is formed in ceiling (8) of elevator shaft (1) and makes possible installation such that one part of hoist (14) projects above the building, cover (18) which is opened and closed from the roof of the building and covers hoist (14), and projecting wall (8A), which is formed at the periphery of opening (17) and prevents water from infiltrating this opening (17), control panel (21) is arranged in the vicinity of hoist (14).

[0013]

In this embodiment, when performing maintenance or repairing a failure of hoist (14), the maintenance man executes the work by climbing to the roof of the building, opening cover (18), and exposing hoist (14) installed such that it projects above the building via opening (17).

[0014]

In an embodiment constituted thus, it is possible to improve the serviceability thereof by performing maintenance or handling a failure of hoist (14) in a relatively wide space at the roof

of the building; in particular, the work can be performed without the necessity of assembling a scaffold at the top part of the elevator shaft. Also, the section that projects from the roof of the building is a part of hoist (14) and the cover that covers this, so it has no effect on solar rights. Furthermore, because hoist (14) is mounted to a pedestal provided at the top end of counterweight guide rail (7), the load of hoist (14) can be carried by counterweight guide rail (7), and it is not necessary to increase the strength of the building.

[0015]

Incidentally, in this embodiment, hoist (14) was mounted to the extension of counterweight guide rail (7), but the present invention is not restricted to this, and it can be mounted to the extension of elevator car guide rail (5).

[0016]

Figure 2 is an overall schematic diagram showing another embodiment of the elevator in the present invention. The same numbers are used for equivalent items shown in aforementioned Figure 1.

[0017]

In the elevator of another embodiment, opening (19) is formed in ceiling (8) of elevator shaft (1) so that cable (11), wrapped on hoist (14), can be passed through, steel plate (22), which has a larger area than this opening (19), is laid over opening (19), and hoist (14) is installed on this steel plate (22) so that the entire body thereof projects at the roof of the building as shown in Figure 2. Then, the load of hoist (14) is carried by ceiling (8) of the building via steel plate (22).

[0018]

Even in this embodiment, when performing maintenance or handling a failure of hoist (14), the maintenance man executes the work by climbing to the roof of the building, opening cover (20), and exposing hoist (14) as in the aforementioned embodiment. By executing the maintenance work or repairing a failure of hoist (14) in a relatively wide space at the roof of the building in the manner described above, it is possible to improve the serviceability. Also, the section that projects from the roof of the building comprises the entire hoist (14) and the cover that covers this, so it has no effect on solar rights.

[0019]

Incidentally, in the aforementioned embodiments, control panel (21) was provided at the roof of the building, but it is not restricted to this [arrangement] and can be placed at an appropriate position within the elevator shaft.

[0020]

Effect of the invention

The present invention was constituted as described above so the serviceability can be improved by allowing maintenance or repair of a hoist failure to be executed in a relatively wide space at the roof of the building, so that a reduction in labor and working time can be achieved.

Brief description of the figures

Figure 1 is an overall schematic diagram showing an embodiment of the elevator in the present invention.

Figure 2 is an overall schematic diagram showing another embodiment of the elevator in the present invention.

Explanation of symbols

(1)...elevator shaft, (4)...elevator car, (5)...elevator car guide rail, (6)...counterweight, (7)...counterweight guide rail, (8)...ceiling, (14)...hoist, (17), (19)...opening, (18), (20)...cover.

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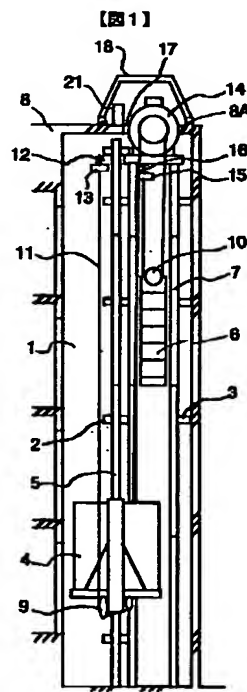
(54)【発明の名称】 エレベータ

(57)【要約】

【課題】 巻上機の故障対応や保守作業時の作業性を向上することのできるエレベータの提供。

【解決手段】 昇降路1の天井部8に形成され、巻上機14を建屋上方に突出して据付け可能とする開口部17と、建屋屋上から開閉され巻上機14を覆うカバー18とを備え、巻上機14の故障対応や保守作業を行う場合、保守員は建屋屋上に於てカバー18を開け、開口部17を介して建屋上方に突出して据付けられた巻上機14を露出させ、作業を行うようになっている。

【効果】 作業時間および労力の低減を図ることができる。



【特許請求の範囲】

【請求項1】 昇降路上部に巻上機を備え、この巻上機によりロープを介して前記昇降路内に設けられた乗かごおよびつり合いおもりを昇降させるエレベータにおいて、

前記昇降路の天井部に形成され、前記巻上機を建屋上方に突出して据付け可能とする開口部と、建屋屋上から開閉され前記巻上機を覆うカバーとを備えたことを特徴とするエレベータ。

【請求項2】 前記巻上機は、乗かごあるいはつり合いおもりを案内するガイドレールの延設部に取付けられることを特徴とする請求項1記載のエレベータ。

【請求項3】 前記巻上機は、建屋屋上にその全体が突出して据付けられることを特徴とする請求項1記載のエレベータ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、巻上機によりロープを介して乗かごおよびつり合いおもりを昇降させ人荷を運ぶエレベータに関する。

【0002】

【従来の技術】一般にロープ式のエレベータにあっては、建物内に昇降路を形成し、この昇降内に乗かごおよびつり合いおもりを配置し、かつ、建物上に機械室を設け、この機械室に巻上機および制御盤が備えられている。

【0003】しかし、機械室が建物上にあることに伴い日照権の問題が生じる場合、油圧式エレベータが主に据え付けられていた。

【0004】しかしながら、油圧式エレベータの場合、その特性上、乗かごの走行速度を油圧式エレベータに比べて速くすることができないという問題があった。

【0005】このため、近時、特開平7-10434号公報に記載されるように、円盤状の回転子からなる巻上機を昇降路頂上部のかご通路上方と昇降路壁間のスペースに配置したものが提案されている。

【0006】

【発明が解決しようとする課題】ところで、前述した従来のエレベータでは、万一、巻上機が故障した場合、昇降路頂上部のスペースが限られたものであることから、その対応に多大の困難が伴うとともに、通常の保守作業にあっても作業性が悪いという問題があった。

【0007】本発明はこのような従来技術における実情に鑑みてなされたもので、その目的は、巻上機の故障対応や保守作業時の作業性を向上することのできるエレベータを提供することにある。

【0008】

【課題を解決するための手段】この目的を達成するために本発明は、昇降路上部に巻上機を備え、この巻上機によりロープを介して前記昇降路内に設けられた乗かご

およびつり合いおもりを昇降させるエレベータにおいて、前記昇降路の天井部に形成され、前記巻上機を建屋上方に突出して据付け可能とする開口部と、建屋屋上から開閉され前記巻上機を覆うカバーとを備えた構成にしてある。

【0009】前記のように構成した本発明のエレベータによれば、巻上機の故障対応や保守作業を行う場合、保守員は建屋屋上からカバーを開け、開口部を介して建屋上方に突出して据付けられた巻上機を露出させ、作業を行う。このように、建屋屋上の比較的広いスペースで巻上機の故障対応や保守作業を行うことにより、その作業性を向上させることができる。また、建屋屋上から突出する部分は、巻上機の一部あるいは全部と、これを覆うカバーであるため、日照権に影響を与えることがない。

【0010】

【発明の実施の形態】以下、本発明のエレベータの実施の形態を図に基づいて説明する。

【0011】図1は本発明のエレベータの一実施形態を示す全体概略図である。

20 【0012】本実施形態のエレベータは図1に示すように、昇降路1の壁にブラケット2を介して取付けられ、乗かご4を案内するかご用ガイドレール5と、昇降路1の壁にブラケット3を介して取付けられ、つり合いおもり6を案内するつり合いおもり用ガイドレール7とが備えられ、これらのガイドレール5、7は昇降路1底部から天井部8付近まで延設されている。また、乗かご4及びつり合いおもり6にはプーリ9、10を介してロープ11が巻回されており、このロープ11の端12は昇降路1上方部に固定されたロープエンド13に固定され、乗かご4下部のプーリ9に巻回されてから、つり合いおもり用ガイドレール7上部に図示しない台座を介して固定された巻上機14に巻き掛けられた後、つり合いおもり6のプーリ10に巻回され、昇降路1上方部に固定された他のロープエンド15にロープ11の他の端16が固定されている。これにより、巻上機14の駆動によりロープ11を介して乗かご4およびつり合いおもり6が昇降するようになっている。さらに、昇降路1の天井部8に形成され、巻上機14の一部を建屋上方に突出して据付け可能とする開口部17と、建屋屋上から開閉され巻上機14を覆うカバー18と、開口部17の周囲に形成され、この開口部17に水が進入することを防ぐ突出壁8Aとが備えられるとともに、巻上機14の近傍に制御盤21が配設されている。

【0013】この実施形態にあっては、巻上機14の故障対応や保守作業を行う場合、保守員は建屋屋上に上り、カバー18を開け、開口部17を介して建屋上方に突出して据付けられた巻上機14を露出させ、作業を行う。

【0014】このように構成した実施形態では、建屋屋上の比較的広いスペースで巻上機14の故障対応や保守

作業を行うことにより、その作業性を向上させることができ、特に、昇降路の上方部に足場を組み立てることを要することなく作業を行うことができる。また、建屋屋上から突出する部分は、巻上機14の一部と、これを覆うカバーであるため、日照権に影響を与えることがない。さらに、巻上機14はつり合いおもり用ガイドレール7上端に設けられた台座に取付けられることにより、巻上機14の荷重をつり合いおもり用ガイドレール7で受けることができ、建家の強度を上げることを要さない。

【0015】なお、本実施形態では巻上機14をつり合いおもり用ガイドレール7の延設部に取付けたが、本発明はこれに限らず、かご用ガイドレール5の延設部に取付けるようにしてもよい。

【0016】図2は本発明のエレベータの他の実施形態を示す全体概略図である。なお、前述した図1に示すものと同等のものには同一符号が付してある。

【0017】他の実施形態のエレベータは図2に示すように、昇降路1の天井部8に巻上機14に巻き掛けられたロープ11が通過できるように開口部19が形成され

ているとともに、開口部19上に、この開口部19より大きな面積を有する鉄板22が敷設され、この鉄板22上に巻上機14が建屋屋上にその全体が突出するようにして据付けられている。そして、巻上機14の荷重は鉄板22を介して建家の天井部8で受けるようになっている。

【0018】この他の実施形態にあっても、前述したものと同様に巻上機14の故障対応や保守作業を行う場合、保守員は建屋屋上に上り、カバー20を開け、巻上機14を露出させて作業を行う。このように、建屋屋上

の比較的広いスペースで巻上機14の故障対応や保守作業を行うことにより、その作業性を向上させることができる。また、建屋屋上から突出する部分は、巻上機14の全体と、これを覆うカバーであるため、日照権に影響を与えることがない。

【0019】なお、前述したそれぞれの実施形態では制御盤21を建家屋上に設けたが、これに限らず、昇降路内の適宜な位置に配設することができる。

【0020】

- 10 【発明の効果】本発明は以上のように構成したので、建屋屋上の比較的広いスペースで巻上機の故障対応や保守作業を行うことにより、その作業性を向上させることができ、これによって、作業時間および労力の低減を図ることができるという効果がある。

【図面の簡単な説明】

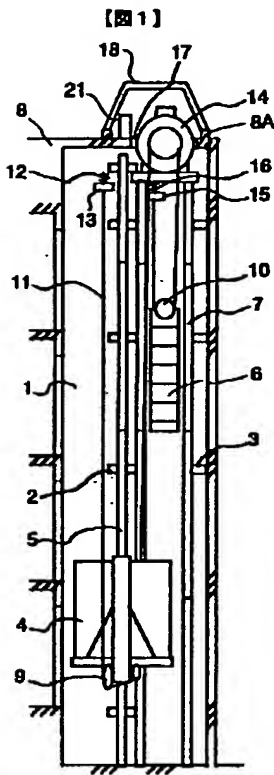
【図1】本発明のエレベータの一実施形態を示す全体概略図である。

【図2】本発明のエレベータの他の実施形態を示す全体概略図である。

- 20 【符号の説明】

- 1 昇降路
- 4 乗かご
- 5 かご用ガイドレール
- 6 つり合いおもり
- 7 つり合いおもり用ガイドレール
- 8 天井部
- 14 巻上機
- 17、19 開口部
- 18、20 カバー

【図1】



【図2】

